Timeline

- Test should be issued and completed within a day/evening where at all possible. We don't want someone spending days upon days designing a solution here – we want/expect a few hours, maximum.
- Get as much done as possible. If the entire solution's requirements can't be completed within the timeline, that's fine – just document what was done, and what was skipped.

What we want to see

- Competent use of C# and .NET
- Easy to read/understandable code.
- Best practices where applicable.
- Well thought out class architecture and layout.

Implementation

- No UI is required – a console application with printout is enough as this is to evaluate the candidate's ability to write C#, not a pretty UI.
- Temperature readings should be read from an external source – console input would be the preferred option.
- Target .NET 4.0 or 4.5 with Visual Studio 2010 or 2012.
- The full solution should be delivered in a compressed archive (with the executable removed) at the end of the assignment.

Task

Design and implement a console application in C# that is a thermometer that read temperature values from console input.

The thermometer needs to be able to display temperature in both Fahrenheit and Celsius. The application should, on startup, define thresholds for **freezing** and **boiling.** The application accepts inputs at which point alerts are generated when a specific threshold has been reached or exceeded.

The alerts should not be repeatedly triggered if the temperature is fluctuating around a threshold point. For example, consider the following temperature readings as the input:

1.5 C
1.0 C
0.5 C
0.0 C
-0.5 C
0.0 C
-0.5 C
0.0 C
0.5 C
0.0 C

Based on this input and a freezing threshold set at 0° C, the freezing alert should only trigger once the temperature has reached 0° C if the accepted fluctuation is set to +/- 0.5° C. The accepted fluctuation limit should be set on startup along with the other threshold definitions.

It is also important that the thresholds are configured with a direction and that alerts are only triggered when the threshold was reached from the defined direction. For example, the alert for freezing should only trigger if the previous temperature was above freezing.